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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 09/403,312   | 01/21/2000  | KUNIO FUKUDA         | 6715/57722          | 7093             |
| 530  | 7590        | 05/02/2006           | EXAMINER            |                  |
| LERNER, DAVID, LITTENBERG,<br>KRUMHOLZ & MENTLIK<br>600 SOUTH AVENUE WEST<br>WESTFIELD, NJ 07090 |             |                      | HARPER, KEVIN C     |                  |
|  |             |                      | ART UNIT            | PAPER NUMBER     |
|  |             |                      | 2616                |                  |

DATE MAILED: 05/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 09/403,312             | FUKUDA, KUNIO       |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Kevin C. Harper        | 2616                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 06 February 2006.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 2-4,7-9,11-13,16-18,21-23,25-29,31,32,38-40,43-45 and 48-50 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) 27-29,31,32,38-40,43-45 and 48-50 is/are allowed.  
 6) Claim(s) 2-4,7-9,11-13,16-18,21-23,25 and 26 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |

***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 6, 2006 has been entered.

***Response to Arguments***

Applicant's arguments, filed December 21, 2005 have been fully considered with the request for continued examination and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Frodigh et al. (US 5,726,978).

***Claim Objections***

1. Claims 8 and 12 are objected to because “of the m units of subcarriers” should be removed for clarity. Previously in the claim, the j subcarriers transmitted by the second terminal were not indicated as part of either m subcarriers transmitted from the first terminal device or m subcarriers transmitted from the base station. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 2-3, 7-8, 11-12, 16-17 and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frodigh et al. (US 5,726,978).

2. Regarding claims 2, 7, 11, 16 and 21, Frodigh discloses an OFDM communication system (col. 4, lines 25-30) comprising a base station device (fig. 2, item 200) having a transmission means (fig. 3B) for carrying out a downlink to a communication terminal device (item 202 or 204) using a multi-carrier signal (items 206 or 210) and receiving means (fig. 3C) for receiving a multi-carrier signal (items 210 or 208). The system also comprises first and second terminal devices (fig. 2, items 202 and 204) having transmission means (fig. 3B) for carrying out a communication of an uplink to the base station device (fig. 2) by using a multi-carrier signal and a receiving means (fig. 3C) for receiving the multi-carrier signal from a base station (col. 8, lines 51-55). The base station has a discriminating means (fig. 3C; col. 8, lines 51-55). However, Frodigh does not specifically disclose transmitting with a single carrier. Although, Frodigh recognizes that the number of carriers may vary among links in the communication system and that the number of carriers for a link is based on a data rate of a link (col. 4, lines 53-56). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to transmit on a single-carrier in the invention of Frodigh in order to properly accommodate the data rate of a link (col. 4, lines 53-54). Further regarding claims 7, 11 and 21, the number of subcarriers for a link may vary (col. 4, lines 53-56) such that a first device uses m subcarriers and a second device uses j subcarriers, where m is not smaller than 2 and j is smaller than m. Further regarding claim 11, three or more terminal devices are present in the system (fig. 1; col. 6, lines 15-20).

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3. Regarding claims 3, 8, 12, 17 and 22, the terminals include a carrier control means for controlling the transmission means to carry out the communication (fig. 3B, item 324; note: from ACA processor (col. 9, lines 32-36).

Claims 4, 9, 13, 18 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frodigh as applied to claim 2, 7, 11, 16 or 21 above, and further in view of Baum et al. (US 5,802,044).

4. Regarding claims 4, 9, 13, 18 and 23, Frodigh does not disclose a timing means for controlling the transmission at a predetermined time slot within a frame. Baum discloses an OFDM system (fig. 1) having an uplink and downlink (col. 2, lines 49-57) using time slots (fig. 8). The base station and terminals each have a slot/frame timing controlling means (fig. 1, timing reference adjustment unit in terminal and timing/sync. signal analyzer in the base station; col. 12, lines 40-46 and 62-65; col. 11, lines 55-58). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have a timing means in the devices of the OFDM system of Frodigh in order to provide for low rate data transmissions through the use of time slots (col. 17, lines 46-51 and 57-61; figs. 8-9).

Claims 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frodigh as applied to claim 21 above, and further in view of Igarashi (US 5,940,143).

5. Regarding claims 25-26, Frodigh does not disclose a passband filter. Igarashi discloses a controllable passband filter (fig. 1, item 20; col. 5, lines 55-58). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have a passband filter for selecting a reception frequency or frequencies in the invention of Frodigh in order to avoid receiving unwanted signals outside a desired reception frequency band (Igarashi, col. 5, lines 58-62).

***Allowable Subject Matter***

6. Claims 27-29, 31-32, 38-40, 43-45 and 48-50 are allowed.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Harper whose telephone number is 571-272-3166. The examiner can normally be reached weekdays from 11:00 AM to 7:00 PM ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To, can be reached at 571-272-7629. The centralized fax number for the Patent Office is 571-273-8300. For non-official communications, the examiner's personal fax number is 571-273-3166 and the examiner's e-mail address is kevin.harper@uspto.gov.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications associated with a customer number is available through Private PAIR only. For more information about the PAIR system, see portal.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kevin C. Harper

April 26, 2006